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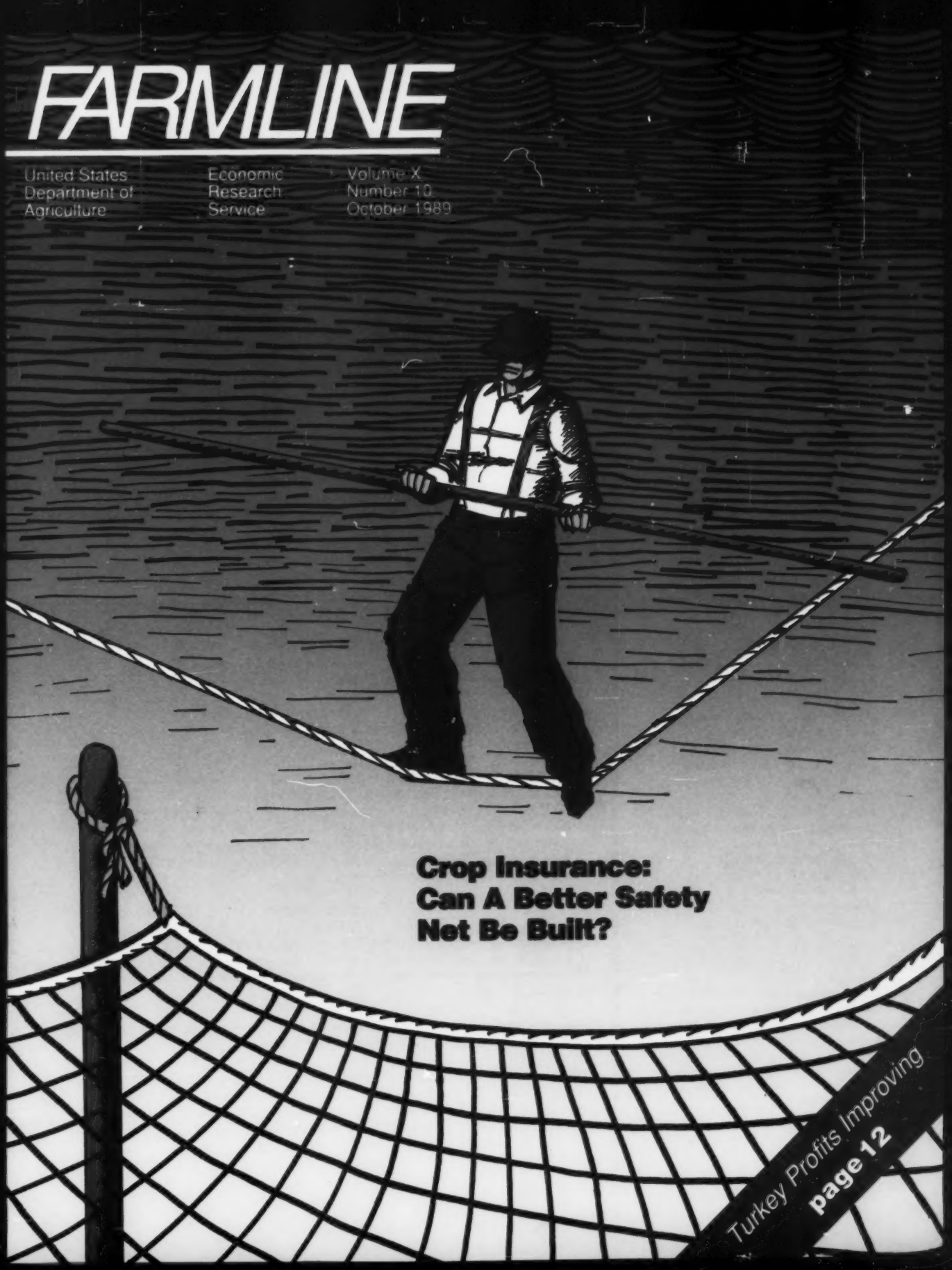

Crop Insurance: Can A Better Safety Net Be Built?

Turkey Profits Improving
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PERSPECTIVES

SUBSTANTIALLY HIGHER PRODUCTION of several major crops is likely this year. USDA's September 12 crop production report projects increases of 49% for corn, 23% for soybeans, 14% for wheat, and 14% for hay.

The 1989 corn crop is forecast at 7.32 billion bushels. Production in 1988 had fallen to 4.9 billion bushels, mainly because of dry weather. Yields this year are expected to average 112.4 bushels per acre, nearly 28 bushels higher than in 1988.

Soybean production of 1.89 billion bushels this year would be 351 million bushels above 1988's drought-reduced crop. The expected average yield of 32.0 bushels per acre would be 5.2 bushels above the 1988 average.

The wheat crop this year is expected to be 2.06 billion bushels. Nearly three-fourths of the output is winter wheat. An average yield of 32.9 bushels per acre for all wheat would be just 1.2 bushels below last year's average. Spring wheat production for 1989 is expected to be up 139% over 1988. Winter wheat output is likely to be down 6% (with Kansas, the leading winter wheat state, down 35%). The 1988 drought primarily affected spring wheat areas, while winter wheat was hit harder by bad weather this year.

World supply and demand for wheat has tightened significantly in recent months, according to ERS economist Ed Allen. Ending stocks now look to be the lowest since 1974/75, he says. Near record season-average prices are possible in the next year, with a range of $3.85 to $4.20 forecast. For the 1988/89 year, prices averaged $3.72 per bushel.

Grain sorghum production is expected to be up 14% this year to 659 million bushels, oat output up 74% to 381 million bushels, and barley up 38% to 401 million bushels.

The 1989 cotton crop is forecast at 12.3 million bales, down 20% from last year and 17% below 1987. ERS analyst Scott Sanford notes that excessive moisture in the Delta region has hurt the crop and that the acreage reduction rate was increased to 25% this year from 12.5% in 1988. He adds that expected use in 1989/90 of 15.5 million bales would be substantially above production, and that ending stocks this year are now estimated at 3.9 million bales, down sharply from forecasts made just a few months ago.

Rice production this year is forecast to be down 4.5% to 152 million cwt. Even though the acreage reduction rate remained at 25% this year, area harvested is expected to be down 5% from 1988, according to ERS economist Janet Livezey. She also notes that yields have been falling in recent years, mainly because of disease problems. Ending stocks this year are expected to be just 22 million cwt, Livezey says.

Peanut production for 1989 is forecast at 4.44 billion pounds in the September report. This would be 11% higher than last year.

The 1989 hay crop is expected to be 145 million tons, an increase of 14% from last year's drought-reduced output. Yield is estimated at 2.31 tons per acre, 20% above 1988. The tobacco crop also will be up this year, with output projected at 1.49 billion pounds, 9% above 1988.

FARMLINE

AGRICULTURE...NATURAL RESOURCES...RURAL DEVELOPMENT
Practical economic intelligence from USDA's Economic Research Service

FEATURES

Crop Insurance: Can a Better Safety Net Be Built? *by Judith Foulke* 4

The goal of the Federal Crop Insurance Act of 1980 was to replace disaster assistance with an expanded and improved insurance program. But enrollment in the program is still low, USDA officials say. Economists are studying several options for a revised crop insurance program that could remove the necessity for expensive, one-time legislative aid such as the 1988 and 1989 drought relief acts.

Export Prospects Tied to Technology Transfer *by Gary Vocke* 8

Developing countries often increase their buying of U.S. agricultural products as they achieve economic advances. Often they are able to increase their own farm production as well. ERS economist Gary Vocke offers evidence that in many cases U.S. export opportunities are greater for crops than for animal products. One reason is the varying potential for transfer of different types of technology.

Better Returns Likely for Turkey Producers *by Judith Foulke* 12

Average net returns for U.S. turkey producers have been on the negative side the last 2 years. But improvement is occurring this year. Americans are eating more turkey, partly because of new products. And grain prices have been lower. It all adds up to better prospects for the nation's turkey producers.

Computers Not Widely Used by U.S. Farmers *by Jack Harrison* 14

U.S. farmers and ranchers are not flocking to computers as a management tool. This is indicated in the annual USDA survey of their costs and returns. Most farmers say they use some form of general ledger or notebook. And less than 12 percent subscribe to a financial recordkeeping service. The survey data have been analyzed according to such factors as farm size, economic class, and region of the country.

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Crop Insurance: Can a Better Safety Net Be Built?

Farmers enrolled over 20 percent more of their eligible acres in the federal crop insurance program this year than last. But enrollment is still less than 50 percent of eligible acres.

The enrollment increase came about because of last year's drought and farmers' need for assistance. The federal government made it mandatory for farmers to enroll in a 1989 crop insurance program in order to receive disaster assistance payments for severe losses in 1988.

The current government-subsidized crop insurance program was legislated in 1980 as the Federal Crop Insurance Act. The goal of the Act was to replace disaster assistance with an expanded and improved crop insurance program.

But analysts say enrollment is much too low. Before this year, less than 30 percent of the eligible acres were enrolled.

So when drought came with its inexorable damage, even with a crop insurance program in place, the federal government paid over $3.7 billion in relief to drought-affected farmers.

Economist Joe Glauber of USDA's Economic Research Service headed an ERS team that studied the crop insurance program to suggest alternatives that would change the rules for farmers and the government for catastrophic risk management. The study is continuing.

"One of the major inhibitors to enrollment in the present crop insurance program is the perception many farmers have that if there is a widespread natural disaster, Congress will legislate ad hoc (one time) assistance and all affected producers will receive government payments to compensate for their losses," Glauber says.

Experience since 1980 has proven the perception correct.

Glauber's team analyzed possible alternatives to the current program. The alternatives included compulsory crop insurance for farmers enrolled in commodity programs. Another would make the compulsory crop insurance free to farmers.

Even with crop insurance in place, the federal government paid over $3.7 billion in relief to drought-affected farmers.

A third alternative would replace crop insurance with a permanent disaster payment program.

And as a fourth alternative, the government would provide a catastrophic risk management program tied to commodity programs, and based on a government-set target revenue.

The team evaluated the alternatives as to how they would affect market prices and farmers' participation in commodity programs. Revenues to farmers as well as costs to the government were examined.

Commodity programs that included the alternatives the ERS team evaluated (with the exception of the target revenue program) would cost the government about the same as they do now for commodity programs alone.

Glauber says that farmers' participation in commodity programs directly affects the cost of crop insurance and disaster relief. "Focusing on disaster and indemnity costs misses the boat," says Glauber, "because these programs affect participation in commodity programs. Price support and deficiency payment costs may far exceed disaster and indemnity costs."

Farmers decide to participate in commodity programs based on the amount of government assistance they can expect. So if commodity programs could also protect against crop losses in a manner that would be economically beneficial to farmers, participation in commodity programs could go up.

These are the alternatives the Glauber team analyzed:

Compulsory Crop Insurance

Compulsory crop insurance would require farmers who participate in commodity price and income support programs to purchase crop insurance for all of their acreage covered under the programs.

To guarantee a minimum level of coverage, farmers would be required to purchase Level II coverage (65 percent of established yields) at the low price election. Farmers would have the option to increase price election or yield coverage. The federal government would subsidize 30 percent of the premium cost.

Currently, farmers can purchase Federal Crop Insurance Corporation yield coverage at the 50, 65, or 75 percent levels. They can choose, in advance, the level of indemnity they want to be paid for each bushel that the yield is below the yield guarantee. For example, per-bushel price election levels for corn in 1989 were $1.50 for 50 percent coverage, $2.00 for 65 percent, and $2.60 for 75 percent.

Private companies would continue to deliver the crop insurance, and their commissions would be a percentage of the total premiums for sales and service.

High participation by farmers in commodity programs would ensure high participation in crop insurance. Glauber says this would negate the need for disaster assistance for commodity program participants.

There is, however, a chance that compulsory crop insurance might have little effect toward meeting the government's goal of eliminating ad hoc congressionally legislated disaster assistance.

For example, explains Glauber, this year market prices for program crops such as wheat have been near the government-set target prices. Participants in the commodity programs are paid the difference between the price they can get from selling on the market and the target price the government sets.

If that difference were small, as it is this year, the additional cost of required crop insurance might have tipped the balance

for farmers, outweighing the benefit of participating in commodity programs.

Fewer farmers enrolled in commodity programs mean reduced Commodity Credit Corporation (CCC) outlays for price support loans and deficiency payments. But fewer farmers in commodity programs would also result in fewer farmers being insured. That situation could increase the likelihood of ad hoc assistance in the event of widespread disaster.

Because farmers participating in commodity programs would be required to purchase insurance, total costs to the government would likely be less than under the current program of crop insurance and ad hoc disaster assistance, says Glauber.

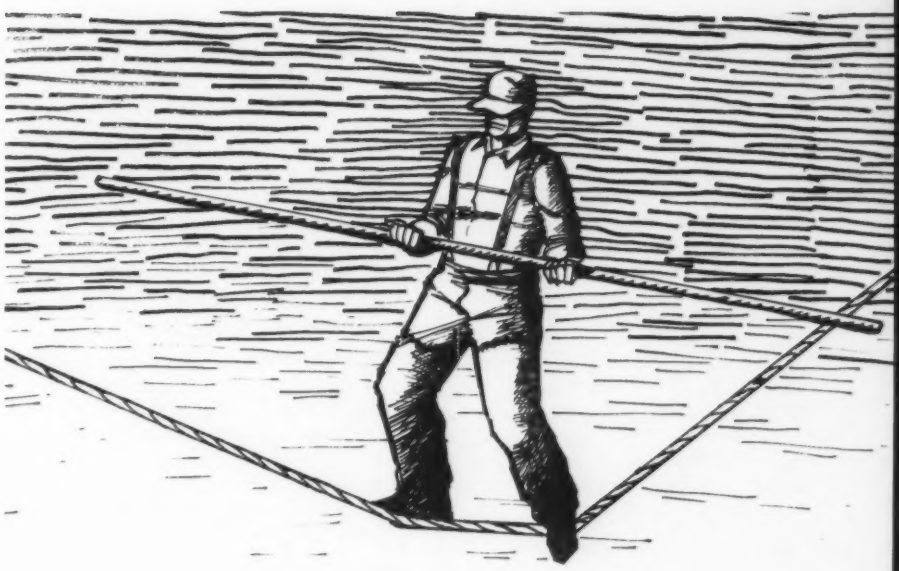
Although under the compulsory insurance alternative the government would have to pay more in total premium subsidies and administrative costs, high participation rates would mean that more farmers in low-risk areas would be in the program. This would reduce the ratio of claims paid to premiums received.

And, with a greater number of farmers participating in crop insurance, it is less likely that ad hoc disaster legislation would be needed, saving the government substantial outlays in the long run, says Glauber. "More importantly," continues the economist, "many farmers would view compulsory insurance as a cost. The program would likely not be popular."

But what about the farmers who raise crops, such as soybeans, not covered by deficiency payment programs, or other crops that do not have commodity programs? Glauber says, "Obviously, compulsory crop insurance is not for all farmers because it fails to address the concerns of nonprogram crops."

Free Crop Insurance

Glauber likens the concept of free crop insurance to a disaster assistance program delivered through private insurance companies rather than through direct government payments. There are more con's than pro's for the government connected to the concept.



One pro is that free crop insurance has the potential to be cheaper to the government than other disaster assistance programs. If farmers could have free insurance at the lowest price election level (50 percent yield loss), indemnity payments would be smaller than under ad hoc disaster legislation. However, low coverage would give farmers only minimal help in the event of a widespread disaster and would increase the likelihood of congressional action.

Free crop insurance, says Glauber, could increase commodity program participation. If price election and yield coverage levels were low, few farmers would be induced to participate in commodity programs. But if price election and yield coverage levels were high, commodity program participation would increase substantially, he explains.

Free crop insurance, thus higher participation in commodity programs, would, however, cost the federal government more in deficiency payments and nonrecourse loans. Moreover, says Glauber, insurance benefits would likely make farmers more reluctant to relinquish base acreage since they would lose potential crop insurance protection in future years.

Free crop insurance could also adversely affect land use, says Glauber. The value of free crop insurance is not constant, but it is greatest for those farms with the most variable yields. This could potentially encourage farmers to grow crops on more marginal land. However, the potential for this occurring is somewhat lower because of the swampbuster and sodbuster provisions of the current farm bill.

And finally, the problem of nonprogram crops is still not addressed. Also, a free crop insurance program would leave farmers with no base acreage unable to participate in the free insurance protection.

Disaster Assistance Program

An alternative to crop insurance is to replace federal crop insurance with a permanent disaster assistance program available to all farmers, whether or not they are enrolled in commodity programs.

This program is the most expensive of all the alternatives. Payments from the federal government could reach as high or higher

than the nearly $4 billion that was paid to farmers with drought losses this year.

Target Revenue Program

The principal advantage of the target revenue program is income stability, says Glauber. The program would replace both the crop insurance and the deficiency payment programs. It would pay farmers the difference, if positive, between a government-set revenue and the revenue a farmer would receive by marketing his crop or placing it under loan.

Target revenue would be calculated as the product of commodity program target price times program yield times the percentage of base acreage that is eligible for program payments. Farmers would qualify for program payments by participating in acreage reduction programs.

The current target price program protects farmers against low prices but offers little protection against disaster-reduced yields. The deficiency payments in the target price program are based on commodity program-calculated yields, rather than on actual yields. This provides a measure of yield insurance when individual crop losses do not correlate with national yields.

However, when actual yield losses are widespread, market prices increase. This reduces the size of per-acre deficiency payments.

Under a target revenue program, farmers would gain (compared to the current program) whenever actual yields fall below program yields, but would lose when actual yields were above program yields. This would stabilize revenue around the target level.

The impact of a target revenue program on government expenditures would depend on the level of the revenue target. Under the 1985 farm bill, program yields were calculated as a 5-year moving average of actual yields, excluding the years with the highest and lowest yields. However, program yields have been frozen since the 1986 crop year.

For example, for corn growers in the Midwest, the frozen program yields could be more than 15 bushels per acre less than the actual average yields. This deficit to corn growers would likely lower their participation in the target revenue program, decreasing CCC outlays, but at a loss to producer revenues.

Conversely, if target revenues were based on average yields rather than on program yields, Glauber's team estimates that the participation rates of corn farmers would increase to almost 82 percent of eligible acreage. But on the negative side for the government, per acre payments to farmers under such a program would increase by as much as $14 compared to the current programs of crop insurance and deficiency payments.

The program based on average yields would cause government costs to soar, says Glauber. It could increase total government costs by over 30 percent over current program costs.

The Glauber team anticipates that a target revenue program would be difficult to implement. Determining revenue payments based on individual farm marketing records would require extensive information gathering and certification.

Glauber projects that implementation problems might be avoided by basing payments on county, state, or regional yields. But then the program would be less effective for farmers as a risk management tool, since payments would be less dependent on individual yield outcomes.

The team's study will be used by policymakers considering the new 1990 farm bill. Glauber says that the second report of the study team, due out early next year, will take a broader look at crop insurance as a risk management tool for farmers. In addition, next year's report will expand the results of this study to include the regional effects of program alternatives.

The new report will also incorporate findings from a joint University of Maryland-ERS 1989 crop insurance survey. The survey samples over 2,700 corn, wheat, sorghum, soybean, cotton, and rice producers nationwide on their attitudes and experiences using federal crop insurance. □

[Based primarily on information provided by economist Joe Glauber of the Commodity Economics Division, Economic Research Service.]

Comparing the Costs of Catastrophic Risk Protection Proposals to the Current Corn Program*

	Current program	Disaster assistance	Crop insurance		Target revenue
			Compulsory	Free	
			million dollars		
Government outlays					
Loan and storage	1,049.7	1,042.1	1,067.3	1,069.1	866.5
Deficiency payments	5,050.0	4,965.7	5,682.2	5,325.3	2,909.6
Disaster payments	174.5	433.6	—	—	—
Indemnity payments	93.7	—	282.3	289.4	—
Premium paid by farmer	−65.6	—	−197.3	0	—
Administrative costs	63.1	75.9	105.9	108.5	—
Total	6,365.4	6,537.3	6,426.0	6,822.4	3,776.1
Percent of current program	100.0	102.7	100.9	107.2	59.3
Percent of disaster assistance program	97.4	100.0	98.3	104.4	57.3

*1989 crop year averages.

Program Costs for Corn Under the Target Revenue Proposal Depend on Revenue Levels

	Current program	Target Revenue Level		
		$266/acre	$288/acre	$303/acre
			percent	
Participation rate	81.8	68.2	81.4	81.8
			dollars per acre	
Per-acre revenue for commodity program participants	288.0	266.0	284.0	302.0
			million dollars	
Government outlays				
Loan and storage	1,049.7	866.5	1,038.2	1,216.5
Deficiency	5,050.0	2,909.6	4,873.8	7,062.2
Disaster	174.5	0	0	0
Net indemnity	28.1	0	0	0
Administrative costs	63.1	0	0	0
Total	6,365.4	3,776.1	5,912.0	8,278.7
Percent of current program	100.0	59.3	92.9	130.1

Target revenue levels are based on a target price of $2.84 a bushel, 10-percent acreage reduction requirement, and yields of 104, 111, and 118 bushels per acre, respectively.

Some Farmers Say Insurance Too Costly

Why haven't more farmers signed up for crop insurance since the newest program was introduced in 1980?

The over $3.7 billion in payments the government made for disaster assistance after the 1988 drought should not have been necessary if the goals the government set for the program had been met.

Criticism of the crop insurance program has led to attempts by the government as well as private interests to determine why more farmers do not carry federal crop insurance.

ERS analysts say that the program attracts farmers who are most susceptible to natural disasters while those who have marginal risks tend to waive insurance coverage.

Some farmers contend that what they are charged for insuring their crops is too costly in comparison to what they receive in the event of a disaster. Seventy-five percent coverage in the event of a crop failure is the ceiling allowed by crop insurance. In most cases the premiums charged for 75 percent coverage are twice that on a 65 percent coverage policy. Financial stress endured by farmers in the recent past has made them more cautious with available cash resources, says ERS economist Joe Glauber.

The 75-percent ceiling on coverage is also a problem, say analysts, because farmers contend that the 25-percent deductible is too high. For most, a production loss in excess of 25 percent is rare, making crop insurance an unnecessary expenditure.

Many farmers self-insure their crops, especially if the incidence of natural disaster is low in their growing region. Self-insurance can be made in the form of diversification, for example, by including soybeans or other crops which are more drought resistant than most row crops.

And finally, analysts have found that a problem to some farmers in the crop insurance program is the complex recordkeeping and paperwork required to prove their crop yields. Farmers have reported frustration by the frequent changes in program rates, rules, and policies.

Export Prospects Tied To Technology Transfer

What are the best possibilities for increased exports of U.S. agricultural products? Economist Gary Vocke of USDA's Economic Research Service, in studying the process of economic advancement in the Third World, has gained insight into such opportunities for U.S. exports. In this article, he explains why the long-term prospects for crop exports may be better than for animal product exports. The reason? It is often easier for developing countries to acquire and use advanced technology in animal production than in crop production.

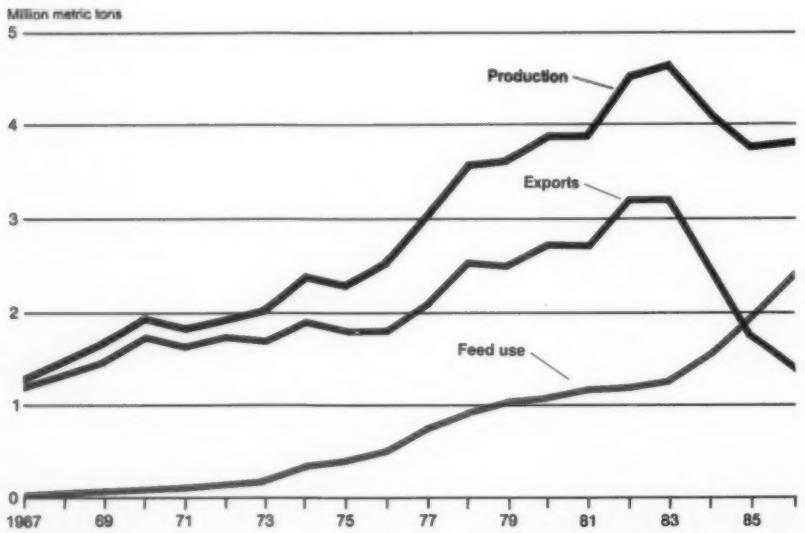
As incomes rise in Third World countries, markets for higher-valued products, including animal products, grow. This market growth can create export opportunities for U.S. farmers with their superior technology to add value to grains by feeding them to livestock and then exporting the meat and other products.

This export opportunity may be short lived, however, because modern feed manufacturing and livestock production technology can be easily and quickly acquired and used by developing countries. This transferability means that meat-importing countries can expand their own production of animal products, even if they have to use imported feed ingredients.

Increased export opportunities for U.S. crops are likely to be longer lasting, because improvements in crop production are not as easily transferred. This should result in continuing Third World demand for feed grains and oilseeds, and for food grains such as wheat.

As developing nations prosper, the consumer demand for meat increases. As long as the market for meat is small, this growing demand can be efficiently supplied by increasing traditional livestock production or by imports. As demand grows, local entrepreneurs will begin producing grain-fed chicken and pork in modern confinement units using technology easily imported from developed countries.

Thailand's Corn Exports Have Decreased as Use of Corn for Livestock Feed Has Increased



Three-year averages.

The development of these livestock industries is driven by consumer demand for fresh meat. In some cases, governments facilitate this transfer of technology and subsidize livestock production to promote economic growth and employment.

These production systems for converting crops into animal products are independent of pastureland, climate, and even the cropland to grow grains. The grain can be imported.

Opportunities Vary by Country

The trade consequences of these transfers vary by country. Some countries have abundant cropland for growing feedstuffs. Examples include soybeans in Brazil and corn in Thailand. The transferred livestock production technology allows these countries to add value to domestic crops through livestock. As these countries with exportable grain or soybeans expand livestock production, less of these crops will be sold in world markets.

For countries lacking sufficient cropland, increased grain-fed meat production creates import markets for feedstuffs. Domestic shortfalls of feedstuffs are common.

For example, Malaysia's rising incomes raise demand for livestock products. Its livestock sector is now 15 percent of national agricultural output. Because Malaysia's cropland and climate are not suitable to grow the needed crops, the country must import most of its feed needs of corn and soybean meal.

Countries like Malaysia, the arid countries of the Middle East, and the land-scarce countries of the Far East, then become linked into a global trading economy from intermediate inputs through to the final product. With broilers, for example, the process begins with the grain and soybean farmers and poultry breeders owning the superior genetic stock. Their crops and breeding stock are easily transported almost anywhere to supply feed manufacturing and hatching egg operations of integrated broiler firms.

The expanding feed needs of broiler and pig operations in Third World countries have frequently outpaced domestic crop production. In aggregate, crop imports have increased, despite the increasing use of improved varieties in some Third World countries.

Corn, the world's principal feed grain, can be grown from tropical to temperate climates. Each country, however, usually has to develop its own varieties. When varieties are transferred from one environment to another, performance falls.

About half of the corn area in developing countries is now planted to improved varieties, and output has increased. Despite the greater output of corn, and sorghum as well, the Third World has shifted from exporting 10 percent of its corn and sorghum production in the mid-1960's to importing 15 percent of total use.

This shift from net exporter to net importer occurred even as corn and sorghum production increased 2.8 percent annually.

Imports of soybean meal to feed livestock have also been rising. The success of a few countries, mainly in temperate areas, has not been duplicated in tropical areas.

Present high-yielding soybean varieties are not well adapted to the tropics because daylengths are different than in the principal exporting countries of the United States, Argentina, and Brazil.

Brazil and Argentina, spurred by high prices during the 1970's, developed large-scale soybean production and processing facilities based on commercial varieties developed for the southern United States. Now Brazilian researchers are attempting to develop varieties suitable for their tropics.

Wheat, Too, Has Limitations

Wheat is another crop not suited for the tropics. Temperatures are too high. The remarkable advances by wheat breeders that created the Green Revolution for wheat are limited to temperate areas.

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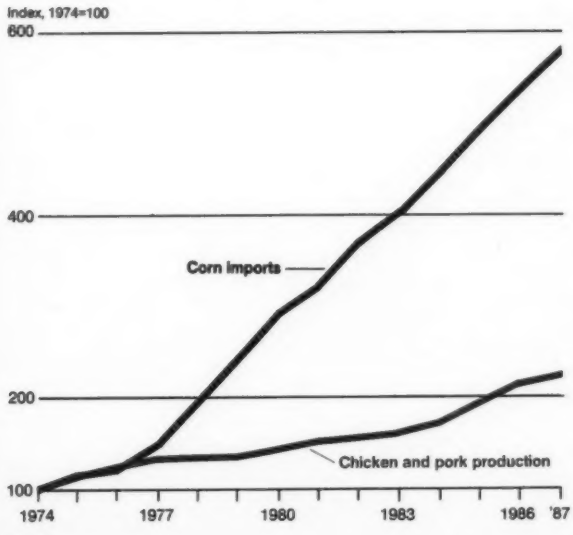
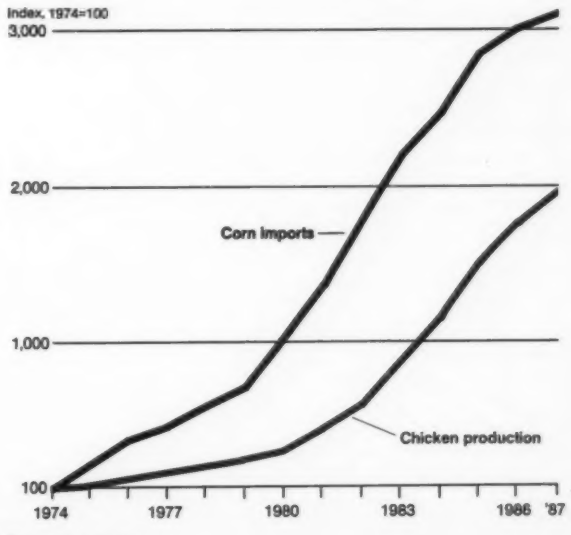
Malaysia's Corn Imports Have Outpaced Production of Chicken and Pork. . .



Three-year averages.

. . .While Saudi Arabia Has Seen a Similar Trend for Corn Imports and Chicken Production



Three-year averages.

Researchers first developed high-yielding spring wheat varieties in the 1950's by crossing Mexican varieties with American semi-dwarf varieties (developed in the 1940's at Washington State University using varieties from Japan).

These improved varieties and others spread quickly through the irrigated wheat growing areas and have now replaced native varieties over about 60 percent of the wheat area. When grown using fertilizers, pesticides, and irrigation, wheat yields have increased two and three times those of native varieties, allowing some former wheat importers to achieve self-sufficiency, for example, India.

Improved varieties have also reduced rice imports of some countries. Researchers developed a high-yielding rice variety for tropical irrigated production during the 1960's by crossing an Indonesian variety with a semi-dwarf from Taiwan. This improved variety and others like it have now spread to about 40 percent of the rice area.

Although rice is grown more widely than wheat because it is suitable for both tropical and temperate climates, use of the improved varieties has concentrated in the irrigated areas of the tropics. Their good response to improved fertility under irrigation encourages farmers to fertilize heavily, greatly increasing production.

Indonesia, for example, once the world's largest rice importer, achieved self-sufficiency in rice using improved rice varieties and heavy fertilization under irrigation. But rising incomes and increasing urbanization led to a greater demand for wheat, which could only be met by imports because Indonesia's tropical climate is not suited for wheat. Indonesia's annual imports of wheat and wheat products have risen from 20,000 tons in the mid-1960's to 1.6 million tons in 1987/88.

Rising incomes in Indonesia and other countries have led to wheat imports that have more than offset the reduced imports by those countries well suited to grow the improved wheat varieties. Wheat imports by developing countries have doubled since the early 1960's even though Third World wheat output has risen more than 150 percent.

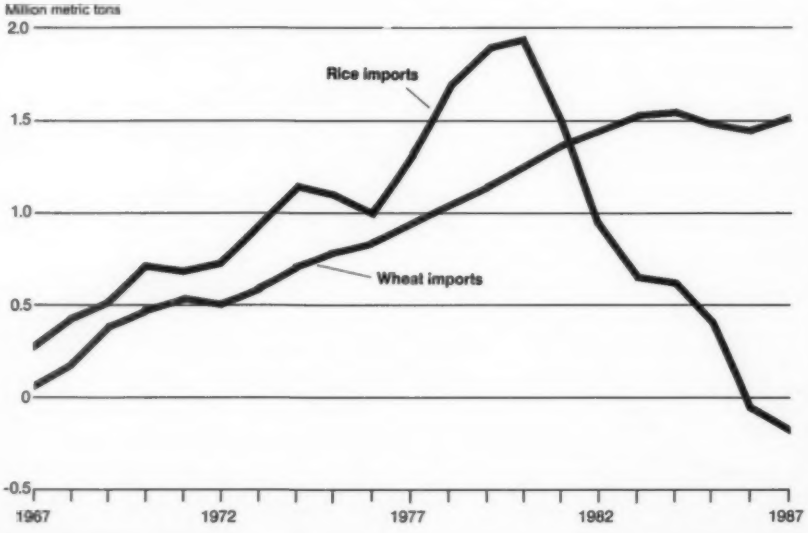
Wheat markets will continue to grow as incomes rise because wheat cannot be grown in some areas. Only where the improved wheat varieties are suitable can the improved crop technology be transferred. This limitation applies to the other crops as well. However, because the feed/livestock technology is not tied to land and climate as are crops, these systems are more widely transferable. Countries whose superior technology gives them an advantage in the export of animal products can easily lose that advantage as the technology is transferred by the private sector.

Suppliers of this technology for grain-fed intensive livestock production are available in many developed countries. If U.S. firms do not sell this technology to Third World countries, firms in the other countries will supply the market. The transfer of this technology is inevitable.

From a wider perspective, the feed/livestock technology transfer creates non-agricultural jobs and earns foreign exchange for the technology exporting country. □

[Written by economist Gary Vocke of the Agriculture and Trade Analysis Division, Economic Research Service.]

Indonesia Reduced Its Rice Imports by Boosting Production, But Could Not Do the Same With Wheat, a Nontropical Crop



Three-year averages.

REPORTS IN THE NEWS

Fertilizer Trade: How It Has Grown

Trends in exports and imports of fertilizer products are important, economically, to the U.S. farm sector and the fertilizer industry.

U.S. fertilizer trade patterns have become increasingly influenced by such factors as world economic conditions, world crop prospects, new sources of fertilizer products, country policies concerning fertilizer production and use, and changing crop production and trade patterns.

This 28-page bulletin contains statistics on U.S. exports and imports of nitrogen, phosphate, and potash over a period of nearly 20 years.

U.S. trade in fertilizer varies widely by nutrient. This country became a net importer of nitrogen in 1983 as lower-cost foreign products began competing successfully with domestic products.

During the last decade, the United States has become the world's largest phosphate fertilizer exporter and has remained the world's largest potash importer.

Between 1970 and 1988, U.S. exports of nitrogen fertilizer increased from 1.33 million nutrient tons to 3.03 million, exports of phosphate rose from 850,000 nutrient tons to 4.11 million, and exports of potash fell from 680,000 nutrient tons to 540,000.

Over the same period, U.S. imports of nitrogen increased from 860,000 nutrient tons to 3.98 million, imports of phosphate fell from 270,000 tons to 160,000, and imports of potash rose from 2.65 million tons to 4.74 million.

Fertilizer Trade Statistics, 1970-88 *by Harry Vroomen. Published June 1989; 28 pages; $5.50 ($7 to non-U.S. addresses).*

Eastern Europe: A Farming Profile

The Soviet Union produced an average of 181.5 million tons of grain annually in 1971-75 but only 180.3 million tons annually in 1981-85.

By contrast, seven countries of Eastern Europe produced a total of 87 million tons of grain annually in 1971-75 and 105 million tons in 1981-85. (Those countries are Bulgaria, Czechoslovakia, East Germany, Hungary, Poland, Romania, and Yugoslavia.)

This publication updates an earlier bulletin that contained statistics covering 1960 through 1980.

New tables have been added with more detail on the farm structure for some of the countries. Several changes in farm organization have occurred, with the recent wave of reforms in the Soviet Union and Eastern Europe, and the new tables reflect these changes.

The official statistical yearbooks of the countries are primary source materials for the data. Since 1971, another basic source of data has been the Council for Mutual Economic Assistance Yearbook.

This bulletin contains 110 tables with data on land use, farm structure, population, farm machinery, fertilizer deliveries, crop production, livestock inventories and production, and per capita consumption of selected foods.

Agricultural Statistics of Eastern Europe and the Soviet Union, 1965-85 *by Nancy J. Cochrane. Published July 1989; 132 pages; $8 ($10 to non-U.S. addresses).*

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Better Returns Likely For Turkey Producers

After one of the 4 worst years for net returns since 1972—when USDA began keeping records of the turkey market—turkey producers can look forward to a happy holiday season.

Economic Research Service analysts predict higher turkey prices and net returns this holiday season because Americans are eating more turkey, and because grain prices should be lower this year than last.

Americans have increased the amount of turkey they eat—16 pounds per capita in 1988 compared to 4 pounds in 1950.

We continue to prefer beef (72.7 pounds per capita in 1988), pork (63.1 pounds), and chicken (62.0 pounds), but turkey is appearing on more dinner tables, mostly because producers are providing it in more manageable portions.

ERS economist Mark Weimar says, "Today consumers do not have to buy a 14-to-20-pound turkey in order to have a turkey meal. Rather, they can choose a breast, or a package of thighs." Other cuts, such as drumsticks, wings, and tenderloins, ground turkey, sausage, and lunch meats, are some of the choices that allow turkey to compete with fresh meats in the relatively easy and fast-to-cook meat category.

Although the increase in consumption is due mostly to the further-processed sector, meaning cut-up birds or processed meat, whole birds still comprise nearly 40 percent of the turkey we eat.

The further-processed turkey market grew in the early 1980's. Weimar says evidence was the change in whole hen prices relative to breast prices, with a premium on breasts larger than 10-12 pounds.

Canner tom turkey prices went up dramatically in 1984 due to lack of canner birds. Hen prices moved up relatively in 1987 as the further-processing market became overburdened.

Analysts say the expanding economy with more disposable personal income allows consumers to continue the trend toward buying more turkey including the more

Turkey is appearing on more dinner tables, mostly because producers are providing it in more manageable portions.

expensive further-processed turkey meat. Also, the prices of other meats have an effect on the price consumers are willing to pay for turkey.

Consumption statistics show that consumers are not necessarily willing to substitute turkey for beef or chicken, but are willing to substitute for pork. Prices for either turkey or ham appear to impact on the other.

Ham is turkey's biggest rival for a place on the menu. USDA estimates show that pork producers have not scaled back production this year as much as analysts were expecting. Thus what was a fairly bright outlook for turkey compared with ham during the fourth-quarter holiday season of 1989 does not look as positive now.

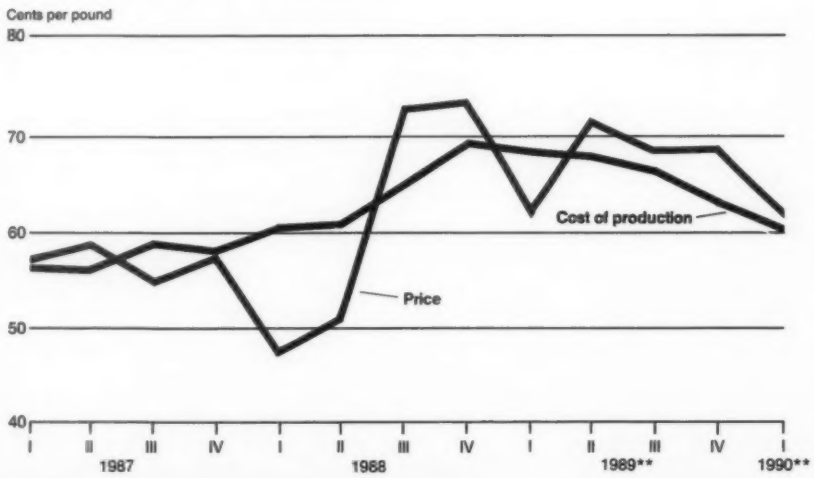
Weimar says that turkey production costs are expected to fall during the second half of 1989 because the prices for feed corn and soymeal are declining.

Turkey feed costs were rising slightly during early 1988 as the result of seasonal storage costs being bid into corn and soymeal prices. But as the drought became more evident in late May and early June, feed costs rose dramatically, says Weimar, driving total costs of production for whole dressed turkeys in late 1988 as high as 73 cents per pound.

Corn prices started to level and fall slightly in late 1988 and early 1989 as high prices during the summer of 1988 reduced demand for feed grains more than was necessary to clear available annual supplies, says Weimar. Soymeal prices began to fall also as we started to import more from South America.

Weimar says that as the new crops come to market, feed costs should continue to drop, bringing costs of production of

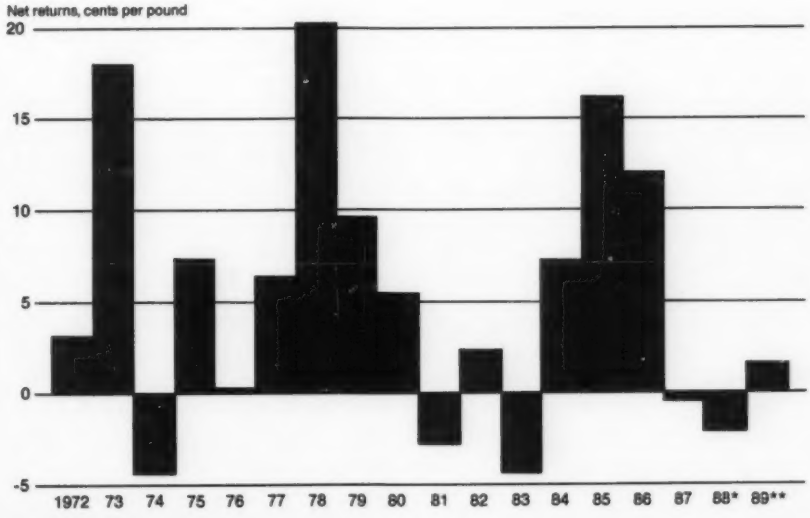
Turkey Prices Dropped Well Below Production Costs in Early 1988, But Are Expected to Recover in 1989*



*Three-region price. Wholesale costs of production, ready-to-cook basis.

**The figures for the last three quarters on this chart are projected and those for the two before that are preliminary.

Analysts Predict an Increase in Turkey Producers' Net Returns for 1989 After 2 Negative Years



All figures adjusted to 1982-84 dollars.
*Preliminary. **Projected.

dressed whole birds down to about 58 cents per pound, well below the 1988 high.

If production costs and feed prices during 1990 continue as predicted, says Weimar, turkey production costs could continue dropping, reaching about 55 cents per pound. These costs would be similar to costs in 1987, making the outlook for the rest of 1989 and into 1990 appear favorable for producers.

Weimar predicts that late 1989 will probably see rising turkey production along with continued high prices. The high prices and expected lower costs of production could mean a profitable year for turkey producers, he says. However, he cautions, increased production and the possibility of higher feed costs could cause "a much bleaker picture." □

[Based on information provided by economist Mark Weimar of the Commodity Economics Division, Economic Research Service.]

Computers Not Widely Used by Farmers

Less than 3 percent of U.S. farmers use computers for financial recordkeeping while 56 percent use general ledgers or notebooks.

Nearly 16 percent use some form of financial records workbook. That leaves 25 percent using "other methods" of recordkeeping, including 14 percent who use the proverbial "shoebox" or some similar informal system of keeping receipts, invoices, and bills of sale.

This information was gathered in the annual Farm Costs and Returns Survey (FCRS) covering operations of calendar year 1987.

The survey is conducted each year by USDA's National Agricultural Statistics Service (NASS) and its state offices.

Another finding in the survey was that less than 12 percent of farmers subscribe to farm financial recordkeeping services. About two-thirds of such services are provided by accountants, the participants in the survey indicated.

Computer usage is not uniform throughout the farm sector. Nearly 15 percent of the operators of "large" farms (those with annual commodity sales of at least $250,000) used computers in 1987—and nearly 40 percent of that category used recordkeeping services.

Large farms accounted for 55 percent of all commodity receipts in 1987, according to economist Jim Johnson of USDA's Economic Research Service. Thus the 3 percent figure (the proportion of all farmers using computers) is not indicative of the amount of U.S. farm production coming from farms that use computers.

Survey Uses Random Sample

The farmers interviewed in the survey constituted a statistically accurate sample of most U.S. farm operators. About 24,000 contacts were made and nearly 13,000 usable, complete questionnaires obtained. The expenditures version of the questionnaire, a part of which was devoted to collection of the information about recordkeeping, was completed by 6,800 farmers.

'Crop farmers apparently place greater importance on financial recordkeeping than livestock farmers.'

The FCRS sample is representative of about 1.7 million of the nation's 2.2 million farms. (The remaining farms are mainly smaller operations that were not as fully represented in the survey sample.)

Diane Willimack, a NASS statistician, analyzed survey data on farmers' recordkeeping practices.

"Previously there had been little documentation of farmers' actual recordkeeping practices," she says, "although much has been written about how farmers should keep financial records for tax or management purposes."

The recordkeeping practices were summarized according to several characteristics of farms and farm operators. These include type of farm, economic class (amount of gross farm sales), region of the country, government program participation, debt-to-asset ratio, and operator's age, education, and primary occupation.

The farmers who have computers were asked to identify their software, but many did not know the name of the software program or reported only the brand of the computer. "A substantial number appeared to have written their own accounting programs," Willimack says. "This suggests that available software programs may not always fit a farm operator's particular needs."

Use of farm records workbooks was most popular in the Midwest, with 20-30 percent of the farmers in the Corn Belt, Northern Plains, and Lake regions using them.

The leading provider of farm records workbooks, with about one-fourth of the total, was the Cooperative Extension Service. USDA's Farmers Home Administration accounted for 11 percent of the workbooks, private financial institutions 8 percent, and government financial agencies 7 percent.

Computer use was greatest in the Pacific region, at 4.6 percent, as was service use, at 16.2 percent. "This was probably due to the prominence of corporate farms and the larger size and greater complexity of farms in this area," Willimack says.

Informal methods of recordkeeping were prevalent in the Southern Plains, the Delta, and Appalachia. These regions are characterized by large numbers of smaller noncommercial farms.

Economic Class a Big Factor

By economic class, the use of formal workbooks peaked at about 30 percent of the operators with annual commodity sales of $40,000 to $250,000. Computer use and service use rose substantially with economic class. About 15 percent of farm operators with sales over $250,000 a year use computers and nearly 40 percent use some type of service.

"Crop farmers appear to place greater importance on financial recordkeeping than livestock farmers, based on the number who use computers and workbooks," Willimack says.

Computers were used more by corporations (15.4 percent) and partnerships (5.4 percent) than by individual operators of farms and ranches. One-third of all corporations used a recordkeeping service, possibly their own paid bookkeepers.

"Participants in government programs apparently keep more complete financial records than nonparticipants," Willimack says. Workbook use among program participants was nearly three times as much, computer use more than double, and service use 50 percent higher.

As the debt-to-asset ratio of farm operations increased from 0 to 40 percent, the use of workbooks, computers, and recordkeeping services as much as tripled. "We're not sure what is cause and what is effect here," Willimack says. "Do more complete records enable operators to make better decisions, to bear more debt, and to take advantage of government programs, or are good records a requirement imposed on operators by lenders and the government?"

The consistency of general ledger use by 50 to 60 percent of U.S. farm operators seems to suggest that records are kept primarily for tax purposes and less for help in making managerial decisions, the analyst notes.

She adds that the use of more advanced recordkeeping methods by younger, better educated farm and ranch operators or hired managers indicates that they adopt such practices as they gain the ability or perceive the need to use them.

"It appears that farm operators are moving up the learning curve with regard to their recordkeeping practices, but there is still ample room for improvement."□

[Based primarily on information provided by statistician Diane Willimack of the National Agricultural Statistics Service and economist Jim Johnson of the Agricultural and Rural Economy Division, Economic Research Service.]

AGRICULTURAL ROUNDUP

Best Advantage For Large Farms May Be in Marketing

Large crop farms have enjoyed economies of scale for years, buying inputs at volume discounts, for example.

Now new evidence makes that connection—between large farms and economies of scale—clearer and more compelling.

"Earlier analyses of economies of scale may have fostered some misleading impressions," says economist Kenneth Krause of USDA's Economic Research Service. "A 1981 nationwide study, for instance, concluded that relatively small crop farms of 200 to 500 acres were about as technically efficient in the use of machines and equipment as large farms."

But technical efficiency doesn't tell the entire story. Though technical efficiency was thought to be the major advantage held by large farms over smaller ones, it is not as important as it might seem for producers of corn, wheat, and soybeans, particularly.

"Going beyond technical efficiency," says Krause, "the newer research indicates that, with good product marketing, larger farms can derive significantly higher returns than smaller farms because of their advantages of size."

And by timing their purchases to take advantage of seasonal lows or to anticipate price run-ups, "farmers can obtain benefits even more significant than volume discounts on purchased inputs," says Krause.

He adds that "small farmers can also benefit from canny forecasting, but large farmers have more incentive to try to anticipate the market as well as devote more resources to it."

Similarly, farmers have the best opportunities to obtain high selling prices for their product from the timing of sales rather than from volume premiums.

"During the 1970's and early 1980's, cash market price quotes for food and feed grains increased by up to 250 percent from the lowest to the highest price within a single marketing year," says Krause. "Prices for futures market contracts varied even more."

Consequently, "farmers can realize economies of scale in obtaining information, analysis, and recommendations, and in using various sales strategies to obtain high selling prices. Large operators have sufficient volume to be able to afford to buy information and advice from market analysts. They are also in a position to use various hedging techniques, such as forward contracting, futures contracts, and the recently introduced options on futures contracts."

By the effective use of both product marketing and input purchasing techniques, Krause notes, some farms may have realized spectacular gains in recent years.

"In addition to showing much greater acreage growth, the best input buyers and product sellers were also able to realize an average of $25,000-$45,000 more income each year than less talented buyers and sellers," says Krause. "In most years, superior selling performance contributed more to enhanced profitability than did superior buying performance. However, superior performance in both activities was important in contributing to the after-tax net income."

"The larger farm operators sometimes travel hundreds of miles to buy inputs and to sell their farm products," says Krause. "As more large farms evolve and fewer moderate size units remain, economic pressures will continue to plague small to moderate sized input and marketing firms in small towns and communities."

At the same time, selling strategies are taking on even greater importance for farmers' financial futures.

"The success of a crop farm business now depends as much on managing the selling of crops as on managing production and procuring farm inputs," says Krause. "In the past 15 years, farmers could earn more net income by selling their crops in the top third to fourth of the marketing year price range than by obtaining maximum input discounts. While volume premiums may be available in some situations and add significantly to farmers' net income, selling near the season-high prices can yield much higher income."

Even so, timing sales for the top of the price range generally requires a substantial commitment of time and resources.

Such strategies must not only take into account price trends but also the cost of holding on to the commodity (in storage costs, as well as the interest cost on borrowed money).

"A farm producer can obtain the top price offered during a marketing year but still not be a superior marketer," Krause explains. "For instance, where a marketing year price range is $2.50 on the first day of the marketing year, $2.80 9 months later, and $3 at the end of the marketing year, the farmer who sells at the lowest price on the first day of the marketing year may obtain the best net price."

He explains that "by holding the commodity for 9 months with an interest cost of 12 percent, the farmer would lose about 22 cents a bushel—and in 12 months about 30 cents a bushel. Commercial storage may also cost about 2.5 cents a month—22.5 cents a bushel for 9 months and 30 cents a bushel for 12 months. With 12-percent money and storage costs, a farmer would need a sales price of $2.95 at the end of 9 months and $3.10 a bushel at the end of 12 months to obtain the same net price as $2.50 on the first day."

Thus, in this example, the farmer obtains a higher net crop selling price by selling on the first day of the marketing year, even if the price increases by 20 percent over the course of the year, notes Krause.

This scenario becomes more complicated when a crop producer has onfarm conditioning and storage facilities.

"Since such facilities can be depreciated against taxable income for federal income tax purposes, and since producers are in different income tax brackets, the cost of onfarm conditioning and storage is probably 10 to 30 percent less than prices charged by commercial facilities," says Krause.

In addition, he says, there may be added costs of loading and unloading the grain, keeping it in good condition on the farm, and reduction in weight as the moisture content declines over time.

"Offsetting these costs, at least in part, is that there is a greater demand than supply of commercial conditioning and storage facilities during peak harvest periods in a community," says Krause.

In effect, then, the costs of onfarm storage throughout a marketing year may generally be 10 to 20 percent less than those charged by commercial facilities.

Monitoring the market for the right mix of "sell signals" can be a daily or even an hourly activity, says Krause.

"Other than watching for opportunities to obtain quality or volume premiums on their products when a grain buyer has such needs, farmers focus on monitoring the constantly changing cash and forward prices offered in the operator's delivery area as well as futures market and option prices on the various formal exchanges," says Krause.

Using selling strategies that involve something other than selling at harvest time or selling a fixed quantity on a predetermined schedule can involve the farmer in considerable time and expense.

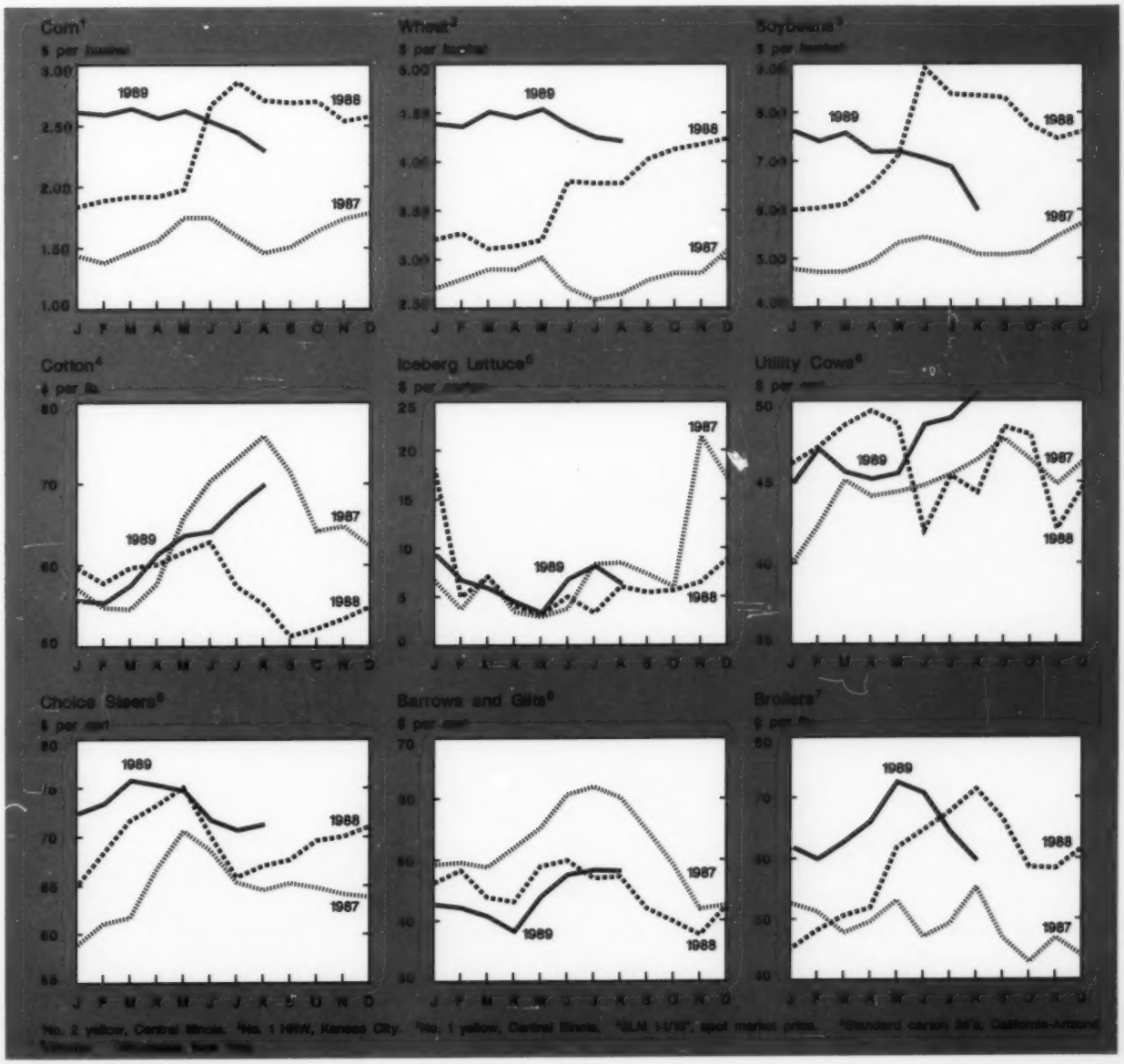
"Farm operators who gather their own crop-selling information, and do their own analysis and decisionmaking, devote an hour or more per day to this activity," says Krause. "During certain selling seasons or during times when fundamental changes are occurring that affect crop prices, much more time may be required."

—Doug Martinez

FARMLINE TRENDS

Monthly Price Monitor

USDA's August 1989 index of farm prices decreased 1.4 percent from July but was unchanged from its year-earlier level. Corn slipped to $2.30 per bushel, the lowest since May 1988, while wheat was down slightly to $4.22, the lowest since November 1988. Soybeans, at $6.01, averaged the lowest since December 1987. Cotton, at 70¢, hit that range for the first time since September 1987 when it averaged 71.4¢ per lb. Lettuce continued to fluctuate and declined $1.83 per carton to $6.33. In the meat animals area, utility cows rose $1.51 to a record $50.58 per cwt. Choice steers gained 60¢ to $71.27. Barrows and gilts slipped to $48.14, while broilers fell to 59.6¢ per lb. All prices shown are monthly averages.

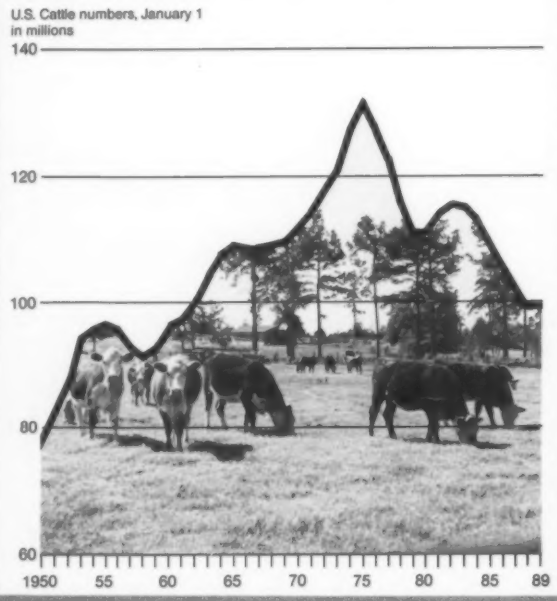


Counting Cattle

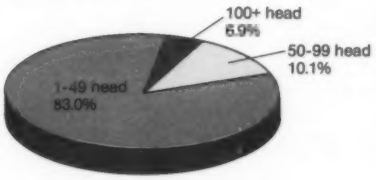
The Cycle Begins Again

The count of all cattle and calves on January 1, 1989, totaled 99.5 million head, down only fractionally from a year earlier. Analysts say this is an indication that beef producers are beginning to expand their breeding herds after 7 years of decline.

The Ninth Cattle Cycle Appears to be Leveling



Most of the U.S. Beef Cow Operations Raise No More Than 49 Cows



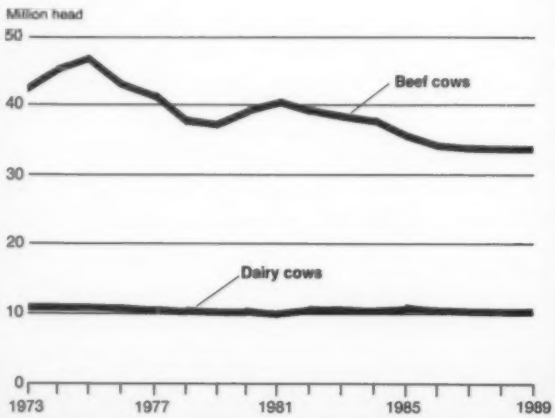
Percent of Cattle Operations by Size Group

. . .But Most of the Cows Are In Operations With Over 100 Head

Percent of Cattle Numbers by Size Group

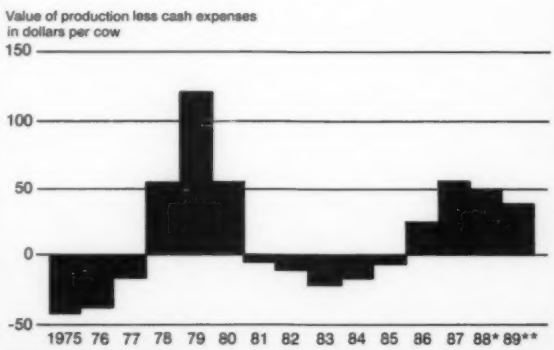
In July 1989, beef and dairy cow numbers changed only slightly from the year before. Beef cow counts were up (34.2 million) and dairy were down (10.1). The number of heifers calving and entering the cow herd during 1989 dropped slightly from 1988 but was still above the number entering in 1987.

July 1989 Beef and Dairy Cow Numbers Remained Stable



Because of uncertainties about adequate forage supplies resulting from last year's drought, producers held down the number of heifers retained for herd expansion to 4 percent more than the year earlier. Many were from the 1988 calf crop and will not be bred until 1989 to calf in 1990. Improved forage supplies and lower grain prices this summer should encourage expansion in 1990/91.

Positive Returns to Beef Cow-Calf Operations Have Offset Negative Impacts of the Drought



*Estimated. **Projected.

Observations and data provided by Ron Gustafson of the Economic Research Service.

—Judith Foulks

Are we approaching a world food crisis?

That's the question addressed in a new report from the Economic Research Service. The question is raised by a confusing array of facts. Most of the world's good farmland is already in production, nearly all the available irrigation water has been tapped, and groundwater supplies are shrinking. **If world population stabilizes sometime around the end of the next century (as currently projected), the world should have enough nonrenewable resources, such as land, water, and energy, to feed a growing population at a gradually improving standard of living.** But these resources are unevenly distributed, resulting in often prolonged, though localized, shortages. And although world food production per capita continues to increase, it's doing so at a slower rate.

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—From *USDA Executive Notes*, Aug. 1989

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